



Dart Hawkesbury
1270 Aberdeen St Hawkesbury, ON K6A 1K7 Canada
Tel (613) 632-5200
Fax 613 632-5246

Purchasing Receipts

PO No	Supplier	Line Item No	Ref No	Terms	Purchased Item	Description	For Part No	Project	Equipment ID	Order Qty	Due Date	Received Quantity	Accounting Job No	Container No	Status	Receive Date	Price/Unit	Aging Days	Past Due	Total	Supplier Name	
PO040612	MEC002-VU	4	1	Net 30	M7075T6S1.750X2.250	7075-T6 Sheet 1.750" X 2.250" MATERIAL: 7075-T6/T62 ALUMINUM SHEET AS PER QQ-A-250/12 OR AMS-QQ-A-250/12 OR AMS 4045 OR ASTM B209 receive ft				44	8/24/2018	36		S107087	Stock	8/30/2018	\$ 40.86 / ft	0		\$1,478.72	Metaux Castle	
		20			M7075T73B1.250X02.000	7075-T73 Bar 1.250" X 2.000" Cut In Billet 30" Long MATERIAL: 7075-T73 OR 7075-T7351/T73510/T73511 BAR PER AMS-QQ-A-200/11 OR AMS-QQ-A-225/9 OR AMS 4124 OR AMS-QQ-A-250/12 OR AMS 4078 receive ft				25	8/31/2018	25		S107088	Stock	8/30/2018	\$ 26.10 / ft	0		\$652.50	Metaux Castle	
										Total:	69		61								\$2,131.22	

Plex 8/30/2018 2:11 PM dart.Tollis.Andrew



Castle Metals®

A. M. Castle & Co.

PACKING SLIP/
CERTIFICATE OF CONFORMANCE



Page 1 of 2

Shipment No:3686769

Ship From: A. M. CASTLE & CO. 2150 ARGENTIA ROAD MISSISSAUGA, ON L5N 2K7 CAN		Sold To: DART AEROSPACE LTD 1270 ABERDEEN HAWKESBURY, ON K6A 1K7 CA	Ship To: DART AEROSPACE LTD 1270 ABERDEEN HAWKESBURY, ON K6A 1K7 CAN	Deliver To: DART AEROSPACE LTD 1270 ABERDEEN HAWKESBURY, ON K6A 1K7 CA
Date Shipped 28-AUG-18	F.O.B. ORIGIN	Freight Terms Prepaid	Carrier MANITOU LIN	BOL No 3686769-2

Shipment Details	Final Destination Branch - TOR
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Order No 5231159	Line No 1	Item No 752207.MO	Description 1.2500.PL.7075.T7351.ALUMINUM.USI.48.5000.144.5000 CUT RECTANGLE TO 2 IN (+ .1250/- .0000 IN) X 30 IN (+ .1250/- .0000 IN) - ALUMINUM PLATE SAW SPECIFICATIONS: AMS-QQ-A-250/12
Purchase Order No 40612	Part Number	Ordered Qty 10.00 PCS	Invoice Qty 10.00 PCS
Details	ALL PAPERWORK MUST FOLLOW ORDER / CUSTOMER MUST RECEIVE AT TIME OF DELIVERY ALL MATERIAL MUST HAVE IDENTIFYING MARKINGS EX:HEAT #'S Email P/s and certs to: clavoie@dartaero.com END USER: DART AEROSPACE END USE: COMMERCIAL AIRCRAFT PARTS		

Delivery No. 122080001	Mill/Source KAISER ALUMINUM	Heat Number  1709772B8111	Mech Id	PCS 3	Width (IN)	Length (IN)	Shipped Qty(LBS) 23.2886
122080001	CONSTELLUM ROLLED PRODUCTS	 19418223111		7			54.3400



Castle Metals®

A. M. Castle & Co.

**PACKING SLIP/
CERTIFICATE OF CONFORMANCE**

Page 2 of 2

We hereby certify the material covered by this certification conforms in accordance with the above specifications and has been found to meet the applicable requirements for the material, including any specifications forming a part of the description. Test reports are on file subject to examination. All claims for defective material are waived unless made in writing to A.M. Castle & Co. within 60 days of the shipment. Material cut to the correct size, or material cut by the customer cannot be returned for credit.

Reviewed by Authorized Castle Metals Representative:

AUG 28 2018

DAVID KALOUS

E. M. Castle & Co.

**Castle Metals®**

A. M. Castle & Co.


**PACKING SLIP/
CERTIFICATE OF CONFORMANCE**


Page 1 of 1

Shipment No:3686769

Ship From: A. M. CASTLE & CO. 2150 ARGENTIA ROAD MISSISSAUGA, ON L5N 2K7 CAN		Sold To: DART AEROSPACE LTD 1270 ABERDEEN HAWKESBURY, ON K6A 1K7 CA	Ship To: DART AEROSPACE LTD 1270 ABERDEEN HAWKESBURY, ON K6A 1K7 CAN	Deliver To: DART AEROSPACE LTD 1270 ABERDEEN HAWKESBURY, ON K6A 1K7 CA
Date Shipped 28-AUG-18	F.O.B. ORIGIN	Freight Terms Prepaid	Carrier MANITOULIN	BOL No 3686769-2

Shipment Details	Final Destination Branch - TOR
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Order No 5220499	Line No 1	Item No 750488.MO	Description 1.7500.PL.7075.T651.ALUMINUM.USI.48.5000.144.5000 CUT 2SIDED TO 2.25 IN (+ .1250/- .0000 IN) X 48.25 IN (+ .1250/- .0000 IN) - ALUMINUM PLATE SAW SPECIFICATIONS: AMS-QQ-A-250/12		
Purchase Order No 40612	Part Number	Ordered Qty 9.00 PCS	Invoice Qty 9.00 PCS		
Details ALL PAPERWORK MUST FOLLOW ORDER / CUSTOMER MUST RECEIVE AT TIME OF DELIVERY ALL MATERIAL MUST HAVE IDENTIFYING MARKINGS EX:HEAT #'S Email P/s and certs to: clavoie@dartaero.com END USER: DART AEROSPACE END USE: COMMERCIAL AIRCRAFT PARTS					
Delivery No. 122058944	Mill/Source CONSTELLUM ROLLED PRODUCTS	Heat Number  9383589	Mech Id	PCS 9	Width (IN)
					Length (IN)
					Shipped Qty(LBS) 177.0385

We hereby certify the material covered by this certification conforms in accordance with the above specifications and has been found to meet the applicable requirements for the material. No other material of the description, test reports are on file subject to examination. All claims for defective material are waived unless made in writing to A.M. Castle & Co. within 60 days of the date of receipt. Material cut to size, or material cut by the customer cannot be returned for credit.	
Reviewed by Authorized Castle Metals Representative:	Signature:  SUE KALOUS
	Date: AUG 28 2018 Name:



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200

PURCHASE ORDER **PO040612**

Supplier: MEC002-VU
Metaux Castle
P.O. Box 4090 Stn A
Toronto
ON
M5W OE9 Canada

PO No: PO040612
PO Date: 7/26/18
Due Date: 8/24/18
Purchase Order Revision:
Revision Date:
Ship-To Contact: Laviole, Chantal
Phone: clavoie@dartaero.com

Ship To: 1270 Aberdeen Street
Hawkesbury
ON
K6A 1K7 Canada
Phone: 613-632-5200

Via: Ground
Pymt Terms: Net 30
Freight Terms:
Special Comments:

Items

Line Item	Job	Part	Supplier Part No	Description	Status	Account	Due Date	Order Quantity	Received Quantity	Balance	Unit Price (USD)	Extended Price
4		M7075T6S1.750X2.250		7075-T6 Sheet 1.750" X 2.250" : MATERIAL: 7075-T6/T62 ALUMINUM SHEET AS PER QQ-A-250/12 OR AMS-QQ-A-250/12 OR AMS 4045 OR ASTM B209 receive ft	Firmed	-	8/24/18	43.75 ft	0 ft	44 ft	\$40.86/ft	\$1,787.63
Line Item Note 20 pc - 48.25" long												
5		M7075T6S1.250X2.750		M7075T6S1.250" X2.750" Cut From Plate : MATERIAL: 7075-T6/T62 ALUMINUM SHEET AS PER QQ-A-250/12 OR AMS-QQ-A-250/12 OR AMS 4045 OR ASTM B209 receive ft	Firmed	-	8/24/18	12 ft	0 ft	12 ft	\$31.20/ft	\$374.40
6		M7075T6S0.375X3.000		7075 T6 Sheet 0.375" X 3.000" : MATERIAL: 7075-T6/T62 ALUMINUM SHEET AS PER QQ-A-250/12 OR AMS-QQ-A-250/12 OR AMS 4045 OR ASTM B209	Firmed	-	8/24/18	60 ft	0 ft	60 ft	\$11.86/ft	\$711.60
7		M7075T6S0.750X4.000		7075 T6 Sheet 0.750" X 4.000" : MATERIAL: 7075-T6/T62 ALUMINUM SHEET AS PER QQ-A-250/12 OR AMS-QQ-A-250/12 OR AMS 4045 OR ASTM B209	Firmed	-	8/24/18	40 ft	0 ft	40 ft	\$28.58/ft	\$1,143.20

Items												
Line Item	Job	Part	Supplier Part No	Description	Status	Account	Due Date	Order Quantity	Received Quantity	Balance	Unit Price (USD)	Extended Price
8 ✓ AT		M7075T6S1.000X1.250		7075 T6 Sheet 1.000X1.250 : MATERIAL: 7075-T6 OR T651/T6510/T6511/T62 ALUMINUM BAR AS PER AMS-QQ-A-225/9 OR AMS 4122/4123/4186/4187 OR PER AMS-QQ-A-200/11 receive ft	Firmed	-	8/24/18	12 ft	0 ft	12 ft	\$17.15/ft	\$205.80 AT 18/08/23
13 ✓ AT		M2024T3S.090		2024-T3 .090 Sheet : MATERIAL: 2024-T3 ALUMINUM SHEET AS PER QQ-A-250/4 OR AMS-QQ-A-250/4 OR AMS 4037 OR ASTM B209 receive sf	Firmed	-	8/24/18	144 sf	0 sf	144 sf	\$8.16/sf	\$1,175.04 AT 18/08/17
19		M6061T6B2.000X08.000		6061-T6 Bar 2.00' X 8.00" (Cut In 4Ft Section) : MATERIAL: 6061- T6/T651/T6510/T6511/T62 ALUMINUM BAR PER QQ-A-225/8 OR AMS-QQ- A-225/8 OR AMS 4117/4128/4115/4116 OR QQ-A-200/8 OR AMS-QQ- A-200/8 OR AMS 4160 OR ASTM B211 OR ASTM B221 receive ft	Firmed	-	8/24/18	8 ft	0 ft	8 ft	\$56.83/ft	\$454.64
Line Item Note cut in section of 4 ft												
21 20 ✓ AT		M7075T73B1.250X02.000		7075-T73 Bar 1.250" X 2.000" Cut In Billet 30" Long : MATERIAL: 7075-T73 OR 7075- T7351/T73510/T73511 BAR PER AMS-QQ-A- 200/11 OR AMS-QQ-A- 225/9 OR AMS 4124 OR AMS-QQ-A-250/12 OR AMS 4078 receive ft	Firmed	-	8/31/18	25 ft	0 ft	25 ft	\$26.10/ft	\$652.50 AT 18/08/30
Line Item Note replacement mat'l for line 9, need RMA to send back mat'l												
Grand Total:												\$6,504.81

Order Notes

Procurement Quality Clauses
 A005 right of entry
 A012 chemical and physical test report
 A016 personnel qualification
 A017 raw material identification (as applicable)
 A026 certification of material conformance
 A041 quality management system
 A042 dart notification by supplier
 A043 retention of quality documents

A048 counterfeit parts avoidance, detection, mitigation and disposition program

A049 supplier awareness

Terms & Condition of Purchasing(Suppliers) and Procurement Quality Clauses are an integral part of our AS9100 requirements. To learn in detail, please visit
www.dartaerospace.com for further explanation.

CL

Plex 8/17/18 8:19 AM dart.lavoie.chantal

SHIP TO:

A M CASTLE METALS
4175 ROYAL DRIVE, SUITE 600
KENNESAW, GA 30144

SOLD TO:

AM CASTLE & CO- SOLD TO
1420 KENSINGTON RD
SUITE 220
OAK BROOK, IL 60523

KAISER ALUMINUM

Trentwood Works

PO Box 15108, Spokane Valley WA 99215-5108

15000 E Euclid, Spokane Valley WA 99216

Phone: (800) 367-2586

CERTIFIED TEST REPORT

Serial Number

4506897

CUSTOMER PO NUMBER: 457976-1	WORK PACKAGE:	CUSTOMER PART NUMBER: 752207	SHIP RUN/LOAD: 104253/20	GOV'T CONTRACT NUMBER:
KAISER ORDER NO: 1254250-1	SHIP DATE: 20-APR-2018	ALLOY: 7075	CLAD: BARE	TEMPER: T7351
WEIGHT SHIPPED: 8100 LB	QUANTITY: 9 PCS EST.	TRUCK B/L #: 2073227	GAUGE: 1.2500 IN (31.7500 MM)	PRODUCT DESCRIPTION: KaiserSelect Plate
			DIAMETER/WIDTH: 48.500 IN (1231.9 MM)	LENGTH: 144.500 IN (3670.3 MM)

MHU 2204153: LOT 709772B8: 3 pieces;

MHU 2206103: LOT 264205B6: 2 pieces;

MHU 2206105: LOT 264205B6: 4 pieces;

Certified Specifications

AMS 4078/RevJ

ASTM B 209/Rev14

BSS 7055/RevB

DPS 4.713/RevAK

GSS16100/RevG/Amd1

PS 21211/RevP

AMS-QQ-A-250/12/RevA

ASTM B 594/Rev13

CMMP 025/RevV

EAC MS1011/RevE

MMS 159/RevT

AMS-STD-2154/RevC

BAC 5439/RevJ

CSTI 006/RevE

GAMPS 9101/RevB/AmdSCN1

PPS 20.04/Rev7

Test Code: 4297

Lot: 264205B6 Cast 624

Drop 26

Test Results

Ingot 3

Melted in USA

(ASTM E8/B557)

(EN 2002-1)

Tensile:	Temper	Dir / # Tests	Ultimate KSI (MPA)	Yield KSI (MPA)	Elongation %
	T7351	LT / 3 (Min:Max)	71.8 : 72.9 (495 : 503)	61.2 : 62.8 (422 : 433)	13.1 : 13.3

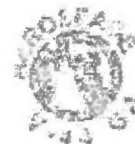
(ASTM E1004)

(EN 2004-1)

Conductivity %IACS :	39.9 Min	40.5 Max
(MS/M) :	23.1 Min	23.5 Max

(ASTM E1251)

Chemistry:	SI	FE	CU	MN	MG	CR	ZN	TI	V	ZR	OTHER
Actual(wt%)	0.08	0.16	1.4	0.04	2.5	0.20	5.6	0.03	0.01	0.02	TOT 0.03





CERTIFIED TEST REPORT

Serial Number

4506897

Trentwood Works

PO Box 15108, Spokane Valley WA 99215-5108

15000 E Euclid, Spokane Valley WA 99216

Phone: (800) 367-2586

Lot: 709772B8 Cast 624 Drop 11 Ingot 1 Parent Lot: 259694B8 Melted in USA

(ASTM E8/B557)

(EN 2002-1)

Tensile:	Temper	Dir / # Tests	Ultimate KSI (MPA)	Yield KSI (MPA)	Elongation %
	T7351	LT / 2 (Min:Max)	72.1 : 72.5 (497 : 500)	61.6 : 62.2 (425 : 429)	13.1 : 13.4

(ASTM E1004)

(EN 2004-1)

Conductivity %IACS :	40.6 Min	40.9 Max
(MS/M) :	23.5 Min	23.7 Max

(ASTM E1251)

Chemistry:	SI	FE	CU	MN	MG	CR	ZN	TI	V	ZR	OTHER
Actual(wt%)	0.08	0.15	1.5	0.03	2.5	0.20	5.7	0.03	0.01	0.02	TOT 0.03

ALLOY LIMITS

	SI	FE	CU	MN	MG	CR	ZN	TI	V	ZR	OTHER	MAX
7075												
MIN(wt%)	0.00	0.00	1.2	0.00	2.1	0.18	5.1	0.00	0.00	0.00	EACH	0.05
MAX(wt%)	0.40	0.50	2.0	0.30	2.9	0.28	6.1	0.20	0.05	0.05	TOT	0.15

Aluminum Remainder

ORDER COMMENTS

AMC CA-15413A R B

TEST NOTES

Metal represented by this test report was 100% Type I (immersion) ultrasonically tested from one side with 3mm dead zones top and bottom and meets the Class A and Class B requirements of all specifications referenced on this test report. No surface marking of sonic indications is performed.

CERTIFICATION

Kaiser Aluminum, Trentwood Works, is ISO 9001, AS9100, and ISO 14001 certified, and hereby certifies that all material shipped under this order:

* has been inspected, tested, and found to be in conformance with the requirements of the specifications indicated herein.

All test equipment and measuring devices are calibrated and certified in accordance applicable specifications. For material thicknesses outside specification limits, mechanical properties are as shown herein and chemical composition meets specification requirements. Reported elongation values have been measured as elongation at fracture.

* was melted in the United States of America or a qualifying country per DFARS 225.872-1(a), was manufactured in the United States of America, and meets the requirements of DFARS 252.225 for domestic content.

* has been thermally processed in compliance with AMS 2772, where applicable.

* is mercury free, within the limits of detection of ASTM E1215 (< 1ppm).

* is in compliance with RoHS 2, European Union Directive 2011/65/EU.

* is in compliance with European Chemical Agency, ECHA, REACH regulations, (EC) No 1907/2006, and Kaiser regularly monitors these regulations for updates.

* is free of Conflict Minerals, as defined in Section 15.2 of the Dodd-Frank Act.

* is free of weld repair.


* meets the reporting requirements of EN10204, Type 3.1.

Any warranty is limited to that shown on Kaiser Aluminum's standard general terms and conditions of sale. Test reports are on file, subject to examination. Test reports shall not be reproduced except in full, without the written approval of the Kaiser Aluminum laboratory. The recording of false, fictitious or fraudulent statements or entries on the certificate may be punished as a felony under federal law.

JAMES HEMENWAY, TECHNICAL PROCESS MANAGER

Revised Certification


CERTIFIED TEST REPORT
 Constellium Rolled Products
 Ravenswood, LLC
S
H
I
P
T
O
 A M CASTLE & COMPANY
 4175 ROYAL DRIVE
 KENNESAW GA
 30144
 US
S
O
L
D
T
O
 A M CASTLE
 1420 KENSINGTON ROAD, SUITE 220
 OAK BROOK IL
 60523
 US

A M CASTLE		110656695		4776		INCLUSION		Serial:20180510-0110656695		Pg 1 of 5	
CUSTOMER PURCHASE ORDER NO. & ITEM 453759						Constellium ORDER NO. 232834			CERTIFICATION "Constellium Rolled Products, hereby certifies that metal shipped under this order has been inspected and found in conformance with the requirements of the applicable specifications as indicated herein. Any warranty is limited to that shown on Constellium Rolled Products' standard General Terms and Conditions of Sales. Test reports are on file, subject to examination." Constellium Rolled Products Ravenswood, LLC 859 Century Road P.O. BOX 68 RAVENSWOOD, WV 26164 USA  Dave Dunbarger - Laboratory Manager		
ALLOY 7075	CLAD	TEMPER T7351	GAUGE 1.25000 in 31.75 mm	WIDTH 48.50000 in 1,232 mm	LENGTH 144.50000 in 3,670 mm						
ITEM ORDERED SPEC PLATE, SAWED MILL FINISH											
CUSTOMER SPECIFICATION AMS 4078J											
PART NUMBER 752207			B/L NUMBER 99378		DATE SHIPPED 05/10/2018						
WT. SHIPPED 8010.000 LB		NO. OF PIECES 000009		GOVT. CONTRACT NO.							

ALL LOTS ON THIS CERTIFICATION ALSO CONFORM TO THE FOLLOWING REQUIREMENTS:

 ASTM B594 REV 13 2013 100% SONIC W/ 0.12" DEADZONE Class A
 AMS QQ-A-250/12A
 AMS-STD-2154A 2012 TYPE1 CLASS A 100% SONIC MINUS DEADZONE
 ASTM B208-14
 BSS-7055B 2013 CLASS A 100% SONIC TESTED MINUS DEADZONE
 CMMP025 REV U
 CST1006 REV E 2011 CLASS A 100% SONIC MINUS DEADZONE
 DPS 4.713 REV AK 2012 CLASS A 100% SONIC MINUS DEADZONE
 GAMPS 9101 REV B 2006 CLASS A 100% SONIC MINUS DEADZONE
 MMS 159T
 PS 21211P 2010 CLASS A 100% SONIC MINUS DEADZONE

Load Details

Package	Net Lbs	Kg	Lot	Piece	Serial	Parent Lot
1001754056	890.000	403.697	9418219	01		
1001754056	890.000	403.697	9418219	02		
1001754056	890.000	403.697	9418219	03		
1001776160	890.000	403.697	9418221	01		
1001776160	890.000	403.697	9418221	02		
1001776160	890.000	403.697	9418221	03		
1001776162	890.000	403.697	9418223	01		
1001776162	890.000	403.697	9418223	02		
1001776162	890.000	403.697	9418223	03		



Lot: 9418219 (See test results below)

Revised Certification



CERTIFIED TEST REPORT
 Constellium Rolled Products
 Ravenswood, LLC

SHIP TO

 A M CASTLE & COMPANY
 4175 ROYAL DRIVE
 KENNESAW GA
 30144
 US

SOLD TO

 A M CASTLE
 1420 KENSINGTON ROAD, SUITE 220
 OAK BROOK IL
 60523
 US

A M CASTLE		110656695		4776		INCLUSION		Serial:20180510-0110656695		Pg 2of5																												
CUSTOMER PURCHASE ORDER NO. & ITEM 453759						Constellium ORDER NO. 232834			CERTIFICATION "Constellium Rolled Products, hereby certifies that metal shipped under this order has been inspected and found in conformance with the requirements of the applicable specifications as indicated herein. Any warranty is limited to that shown on Constellium Rolled Products' standard General Terms and Conditions of Sales. Test reports are on file, subject to examination." Constellium Rolled Products Ravenswood, LLC 859 Century Road P.O. BOX 68 RAVENSWOOD, WV 26164 USA  Dave Dunbarger - Laboratory Manager																													
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PART NUMBER 752207			B/L NUMBER 99378		DATE SHIPPED 05/10/2018																																	
WT. SHIPPED 8010.000 LB		NO. OF PIECES 000009		GOVT. CONTRACT NO.																																		
Tensile - Room Temperature (US) <table border="1"> <thead> <tr> <th colspan="2"></th> <th colspan="2">Ultimate (KSI)</th> <th colspan="2">Yield (KSI)</th> <th colspan="2">Elongation (%)</th> <th>Report</th> </tr> <tr> <th>Direction</th> <th>Tests</th> <th>Min</th> <th>Max</th> <th>Min</th> <th>Max</th> <th>Min</th> <th>Max</th> <th></th> </tr> </thead> <tbody> <tr> <td>LT</td> <td>02</td> <td>71.7</td> <td>72.4</td> <td>60.6</td> <td>62.1</td> <td>12.5</td> <td>12.5</td> <td></td> </tr> </tbody> </table>														Ultimate (KSI)		Yield (KSI)		Elongation (%)		Report	Direction	Tests	Min	Max	Min	Max	Min	Max		LT	02	71.7	72.4	60.6	62.1	12.5	12.5	
		Ultimate (KSI)		Yield (KSI)		Elongation (%)		Report																														
Direction	Tests	Min	Max	Min	Max	Min	Max																															
LT	02	71.7	72.4	60.6	62.1	12.5	12.5																															
Tensile - Room Temperature (SI) <table border="1"> <thead> <tr> <th colspan="2"></th> <th colspan="2">Ultimate (N/MM2)</th> <th colspan="2">Yield (N/MM2)</th> <th colspan="2">Elongation (%)</th> <th>Report</th> </tr> <tr> <th>Direction</th> <th>Tests</th> <th>Min</th> <th>Max</th> <th>Min</th> <th>Max</th> <th>Min</th> <th>Max</th> <th></th> </tr> </thead> <tbody> <tr> <td>LT</td> <td>02</td> <td>494</td> <td>499</td> <td>418</td> <td>428</td> <td>12.5</td> <td>12.5</td> <td></td> </tr> </tbody> </table>														Ultimate (N/MM2)		Yield (N/MM2)		Elongation (%)		Report	Direction	Tests	Min	Max	Min	Max	Min	Max		LT	02	494	499	418	428	12.5	12.5	
		Ultimate (N/MM2)		Yield (N/MM2)		Elongation (%)		Report																														
Direction	Tests	Min	Max	Min	Max	Min	Max																															
LT	02	494	499	418	428	12.5	12.5																															
Conductivity % IACS MIN 40.9 MAX 41.1 % MS/M MIN 23.7 MAX 23.8																																						
Chemistry (Actual) <table border="1"> <thead> <tr> <th></th> <th>SI</th> <th>FE</th> <th>CU</th> <th>MN</th> <th>MG</th> <th>CR</th> <th>ZN</th> <th>TI</th> <th>ZR</th> </tr> </thead> <tbody> <tr> <td>Core</td> <td>0.05</td> <td>0.10</td> <td>1.50</td> <td>0.01</td> <td>2.47</td> <td>0.20</td> <td>5.65</td> <td>0.03</td> <td>0.00</td> </tr> </tbody> </table>													SI	FE	CU	MN	MG	CR	ZN	TI	ZR	Core	0.05	0.10	1.50	0.01	2.47	0.20	5.65	0.03	0.00							
	SI	FE	CU	MN	MG	CR	ZN	TI	ZR																													
Core	0.05	0.10	1.50	0.01	2.47	0.20	5.65	0.03	0.00																													
OTHERS-EACH: .05 MAX. OTHERS TOTAL: .15 MAX. AL REMAINDER																																						
All material contained in this lot was cast and manufactured in the USA																																						
Lot: 9418221 (See test results below)																																						
P-860-15SD REVISED: 01 2018																																						

Revised Certification

Constellium

Accredited
Nadcap
Materials Testing Laboratory


CERTIFIED TEST REPORT
Constellium Rolled Products
Ravenswood, LLC

SHIP TO

A M CASTLE & COMPANY
4175 ROYAL DRIVE
KENNESAW GA
30144
US

SHIP TO

A M CASTLE
1420 KENSINGTON ROAD, SUITE 220
OAK BROOK IL
60523
US

A M CASTLE		110656695		4776		INCLUSION		Serial: 20180510-0110656695		Pg 3 of 5																															
CUSTOMER PURCHASE ORDER NO. & ITEM 459759						Constellium ORDER NO. 232834			CERTIFICATION "Constellium Rolled Products, hereby certifies that metal shipped under this order has been inspected and found in conformance with the requirements of the applicable specifications as indicated herein. Any warranty is limited to that shown on Constellium Rolled Products' standard General Terms and Conditions of Sales. Test reports are on file, subject to examination." Constellium Rolled Products Ravenswood, LLC 859 Century Road P.O. BOX 68 RAVENSWOOD, WV 26164 USA  Dave Dunbarger - Laboratory Manager																																
ALLOY 7075	CLAD	TEMPER T7351	GAUGE 1.25000 in 31.75 mm	WIDTH 48.50000 in 1,232 mm	LENGTH 144.50000 in 3,670 mm																																				
ITEM ORDERED SPEC PLATE, SAWED MILL FINISH																																									
CUSTOMER SPECIFICATION AMS 4076																																									
PART NUMBER 752207			B/L NUMBER 89378		DATE SHIPPED 05/10/2018																																				
WT. SHIPPED 8010.000 LB		NO. OF PIECES 000009		GOVT. CONTRACT NO.																																					
Tensile - Room Temperature (US) <table border="1"> <thead> <tr> <th colspan="2"></th> <th colspan="2">Ultimate (KSI)</th> <th colspan="2">Yield (KSI)</th> <th colspan="2">Elongation (%)</th> <th colspan="2">Report</th> </tr> <tr> <th>Direction</th> <th>Tests</th> <th>Min</th> <th>Max</th> <th>Min</th> <th>Max</th> <th>Min</th> <th>Max</th> <th colspan="2"></th> </tr> </thead> <tbody> <tr> <td>LT</td> <td>02</td> <td>72.6</td> <td>73.6</td> <td>61.6</td> <td>62.9</td> <td>13.0</td> <td>13.0</td> <td colspan="2"></td> </tr> </tbody> </table>														Ultimate (KSI)		Yield (KSI)		Elongation (%)		Report		Direction	Tests	Min	Max	Min	Max	Min	Max			LT	02	72.6	73.6	61.6	62.9	13.0	13.0		
		Ultimate (KSI)		Yield (KSI)		Elongation (%)		Report																																	
Direction	Tests	Min	Max	Min	Max	Min	Max																																		
LT	02	72.6	73.6	61.6	62.9	13.0	13.0																																		
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		Ultimate (N/MM2)		Yield (N/MM2)		Elongation (%)		Report																																	
Direction	Tests	Min	Max	Min	Max	Min	Max																																		
LT	02	501	507	425	434	13.0	13.0																																		
Conductivity % IACS MIN 40.5 MAX 41.8 % MS/M MIN 23.5 MAX 24.2																																									
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	SI	FE	CU	MN	MG	CR	ZN	TI	ZR																																
Core	0.05	0.10	1.43	0.01	2.56	0.20	5.67	0.04	0.00																																
OTHERS-EACH: .05 MAX. OTHERS TOTAL: .15 MAX. AL REMAINDER																																									
All material contained in this lot was cast and manufactured in the USA																																									
Lot: 9418223 (See test results below)																																									
P-860-155D REVISED: 01 2018																																									

Revised Certification

Constellium

Accredited
Nadcap
 Materials Testing Laboratory

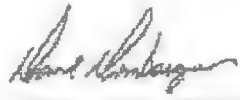
CERTIFIED TEST REPORT
 Constellium Rolled Products
 Ravenswood, LLC

SHIP TO

 A M CASTLE & COMPANY
 4175 ROYAL DRIVE
 KENNESAW GA
 30144
 US

SOLD TO

 A M CASTLE
 1420 KENSINGTON ROAD, SUITE 220
 OAK BROOK IL
 60523
 US

A M CASTLE		110656695		4776		INCLUSION		Serial:20180510-0110656695		Pg 4of5																												
CUSTOMER PURCHASE ORDER NO. & ITEM 453759						Constellium ORDER NO. 232834			CERTIFICATION "Constellium Rolled Products, hereby certifies that metal shipped under this order has been inspected and found in conformance with the requirements of the applicable specifications as indicated herein. Any warranty is limited to that shown on Constellium Rolled Products' standard General Terms and Conditions of Sales. Test reports are on file, subject to examination." Constellium Rolled Products Ravenswood, LLC 859 Century Road P.O. BOX 68 RAVENSWOOD, WV 26164 USA  Dave Dunbarger - Laboratory Manager																													
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ITEM ORDERED SPEC PLATE, SAWED MILL FINISH																																						
CUSTOMER SPECIFICATION AMS 4078J																																						
PART NUMBER 752207			B/L NUMBER 99378		DATE SHIPPED 05/10/2018																																	
WT. SHIPPED 8010.000 LB		NO. OF PIECES 000009		GOVT. CONTRACT NO.																																		
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		Ultimate (KSI)		Yield (KSI)		Elongation (%)		Report																														
Direction	Tests	Min	Max	Min	Max	Min	Max																															
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		Ultimate (N/MM2)		Yield (N/MM2)		Elongation (%)		Report																														
Direction	Tests	Min	Max	Min	Max	Min	Max																															
LT	02	500	501	425	429	12.5	12.5																															
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Core	0.05	0.10	1.43	0.01	2.56	0.20	5.67	0.04	0.00																													
OTHERS-EACH: .05 MAX. OTHERS TOTAL: .15 MAX. AL REMAINDER																																						
All material contained in this lot was cast and manufactured in the USA																																						
QUALITY TEXTS: AMC CA-15413A R 8																																						
Revised Certification: "Also conforms with CMMP D25 Rev V" - customer request. "Revision certifies the material properties and condition as it originally left the mill, not as of date of revision".																																						
P-860-165D REVISED: 01 2018																																						

 RYW QUALITY
 05568-1

 Pat Martin
 5/16/18



DESIGN 	DRAWN BY 	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED 	APPROVED 	DRAWING NO. M707ST73B	REV. A SHEET 1 OF 1
DATE 01.06.08		TITLE 707S-T73 BAR	SCALE NTS
A	01.06.08	NEW ISSUE	

PURCHASE MATERIAL:

707S-T73 (OR 707S-T73S1/T73S10/T73S11) BAR
PER AMS-QQ-A-200/11 OR AMS-QQ-A-225/9 (AMS 4124)
OR AMS-QQ-A-250/12 (AMS 4078)

PART NUMBER:

M707ST73B | T.TTT | x | WW.WWW | WHERE T.TTT = THICKNESS (IN INCHES)
THICK | WIDTH | WW.WWW = WIDTH (IN INCHES)

EG. 2.5" x 3.25" BAR = M707ST73B2.500 x 03.250

RELEASED
1992.5

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MATERIAL RECEIPT INSPECTION FORM

MATERIAL: M707577381.250x0.2.00

PO / BATCH NO.: P00406125107088

DATE: 18/08/30

MATERIAL CERT REC'D: Yes

THICKNESS ORDERED: 1.250"

QUANTITY RECEIVED: 25L4

THICKNESS RECEIVED: 1.250"

QUANTITY INSPECTED: 25L4

SHEET SIZE ORDERED: —

QUANTITY REJECTED: 0

SHEET SIZE RECEIVED: —

DESCRIPTION	NCR (Check Y/N)		COMMENTS
SURFACE DAMAGE	Y	<u>(N)</u>	
CORRECT FINISH	<u>(Y)</u>	N	
CORROSION	Y	<u>(N)</u>	
CORRECT GRAIN DIRECTION	<u>(Y)</u>	N	
CORRECT MATERIAL PER M-DRAWING	<u>(Y)</u>	N	<u>AMS 4078</u>
CORRECT THICKNESS	<u>(Y)</u>	N	
PHOTO REQUIRED	Y	<u>(N)</u>	
CORRECT REF # TO LINK CERT	<u>(Y)</u>	N	<u>MM: 70977288, 9418233</u>
CORRECT MATERIAL IDENTIFICATION	<u>(Y)</u>	N	
CORRECT M# ON THE MATERIAL	<u>(Y)</u>	N	
DOES THIS MATERIAL REQUIRE ENGINEERING SIGN OFF	Y	<u>(N)</u>	
DOES THIS REQUIRE AN EXTRUSION REPORT	Y	<u>(N)</u>	

CUT SAMPLE PIECE OF MATERIAL AND PREFORM A HARDNESS CHECK. RECORD RESULTS BELOW					
	HRC	HRB	DUR A	DUR D	WEBSTER
TYPE OF MATERIAL					
SIZE OF TEST SAMPLE					
HARDNESS / DUROMETER READING					

testers located in the Quality Office

QC 18 INSPECTION		ENGINEERING SIGNOFF (if required)	
INSPECTED BY: <u>AT</u>		SIGNED OFF BY: _____	
DATE: <u>18/08/30</u>		DATE: _____	

Attach this inspection sheet with the corresponding material cert and remit to be scanned and received in



Constellium



CERTIFIED TEST REPORT

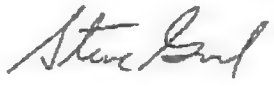
Constellium Rolled Products
Ravenswood, LLC

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A M CASTLE & CO.
14001 ORANGE AVE.
PARAMOUNT CA
90723
US

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A M CASTLE
1420 KENSINGTON ROAD, SUITE 220
OAK BROOK IL
60523
US

A M CASTLE		110516970		4075		INCLUSION		Serial:20170322-0110516970		Pg 1of3	
CUSTOMER PURCHASE ORDER NO. & ITEM 413045						Constellium ORDER NO. 198377					
ALLOY 7075	CLAD	TEMPER T651	GAUGE 1.75000 in 44.45 mm	WIDTH 48.50000 in 1,232 mm	LENGTH 144.50000 in 3,670 mm		CERTIFICATION "Constellium Rolled Products, hereby certifies that metal shipped under this order has been inspected and found in conformance with the requirements of the applicable specifications as indicated herein. Any warranty is limited to that shown on Constellium Rolled Products' standard General Terms and Conditions of Sales. Test reports are on file, subject to examination." Constellium Rolled Products Ravenswood, LLC 859 Century Road P.O. BOX 68 RAVENSWOOD, WV 26164 USA  Steve Good - Laboratory Manager				
ITEM ORDERED SPEC PLATE, SAWED MILL FINISH											
CUSTOMER SPECIFICATION AMS QQ-A-250/12A											
PART NUMBER 750488			B/L NUMBER 77792		DATE SHIPPED 03/22/2017						
WT. SHIPPED 9940.000 LB			NO. OF PIECES 000008		GOVT. CONTRACT NO.						

ALL LOTS ON THIS CERTIFICATION ALSO CONFORM TO THE FOLLOWING REQUIREMENTS:

ASTM B594 REV 13 2013 100% SONIC W/ 0.125"DEADZONE Class A
 AMS 4045K
 AMS-STD-2154A 2012 TYPE1 CLASS A 100% SONIC MINUS DEADZONE
 ASTM B209-14
 BSS-7055B 2013 CLASS A 100% SONIC TESTED MINUS DEADZONE
 CST1006 REV E 2011 CLASS A 100% SONIC MINUS DEADZONE
 DPS 4.713 REV AK 2012 CLASS A 100% SONIC MINUS DEADZONE
 GAMPS 9101 REV B 2006 CLASS A 100% SONIC MINUS DEADZONE
 PS 21211P 2010 CLASS A 100% SONIC MINUS DEADZONE

Load Details

Package	Net Lbs	Kg	Lot	Piece	Serial	Parent Lot
1001476359	1,245.000	564.722	9383589	01		
1001476359	1,245.000	564.722	9383589	02		
1001476360	1,245.000	564.722	9383589	03		
1001476360	1,245.000	564.722	9383589	04		
1001476361	1,240.000	562.454	9383590	01		
1001476361	1,240.000	562.454	9383590	02		
1001476362	1,240.000	562.454	9383590	03		
1001476362	1,240.000	562.454	9383590	04		

Lot: 9383589

Tensile - Room Temperature (US)

		Ultimate (KSI)		Yield (KSI)		Elongation (%)		Report
Direction	Tests	Min	Max	Min	Max	Min	Max	
LT	02	78.2	79.8	68.2	69.6	12.0	12.5	





Constellium



CERTIFIED TEST REPORT
Constellium Rolled Products
Ravenswood, LLC

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T
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A M CASTLE & CO.
14001 ORANGE AVE.
PARAMOUNT CA
90723
US

S
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T
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A M CASTLE
1420 KENSINGTON ROAD, SUITE 220
OAK BROOK IL
60523
US

A M CASTLE		110516970		4075		INCLUSION		Serial:20170322-0110516970		Pg 2of3	
CUSTOMER PURCHASE ORDER NO. & ITEM 413045						Constellium ORDER NO. 198377					
ALLOY 7075	CLAD	TEMPER T651	GAUGE 1.75000 in 44.45 mm	WIDTH 48.50000 in 1,232 mm	LENGTH 144.50000 in 3,670 mm		CERTIFICATION "Constellium Rolled Products, hereby certifies that metal shipped under this order has been inspected and found in conformance with the requirements of the applicable specifications as indicated herein. Any warranty is limited to that shown on Constellium Rolled Products' standard General Terms and Conditions of Sales. Test reports are on file, subject to examination." Constellium Rolled Products Ravenswood, LLC 859 Century Road P.O. BOX 68 RAVENSWOOD, WV 26164 USA  Steve Good - Laboratory Manager				
ITEM ORDERED SPEC PLATE, SAWED MILL FINISH											
CUSTOMER SPECIFICATION AMS QQ-A-250/12A											
PART NUMBER 750488			B/L NUMBER 77792		DATE SHIPPED 03/22/2017						
WT. SHIPPED 9940.000 LB		NO. OF PIECES 000008		GOVT. CONTRACT NO.							

Tensile - Room Temperature (SI)							
		Ultimate (N/MM2)		Yield (N/MM2)		Elongation (%)	
Direction	Tests	Min	Max	Min	Max	Min	Max
LT	02	539	550	470	480	12.0	12.5

Chemistry (Actual)

	SI	FE	CU	MN	MG	CR	ZN	TI	ZR
Core	0.07	0.21	1.47	0.04	2.49	0.20	5.57	0.04	0.01

OTHERS-EACH: .05 MAX. OTHERS TOTAL: .15 MAX. AL REMAINDER

All material contained in this lot was cast and manufactured in the USA

Lot: 9383590

Tensile - Room Temperature (US)							
		Ultimate (KSI)		Yield (KSI)		Elongation (%)	
Direction	Tests	Min	Max	Min	Max	Min	Max
LT	02	78.9	79.0	68.3	70.4	11.5	12.0



Constellium



CERTIFIED TEST REPORT
Constellium Rolled Products
Ravenswood, LLC

S
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A M CASTLE & CO.
14001 ORANGE AVE.
PARAMOUNT CA
90723
US

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A M CASTLE
1420 KENSINGTON ROAD, SUITE 220
OAK BROOK IL
60523
US

A M CASTLE 110516970 4075 INCLUSION Serial:20170322-0110516970 Pg 3of3

CUSTOMER PURCHASE ORDER NO. & ITEM
413045

Constellium ORDER NO.
198377

ALLOY 7075	CLAD	TEMPER T651	GAUGE 1.75000 in 44.45 mm	WIDTH 48.50000 in 1,232 mm	LENGTH 144.50000 in 3,670 mm
---------------	------	----------------	---------------------------------	----------------------------------	------------------------------------

ITEM ORDERED
SPEC PLATE, SAWED
MILL FINISH

CUSTOMER SPECIFICATION
AMS QQ-A-250/12A

PART NUMBER 750488	B/L NUMBER 77792	DATE SHIPPED 03/22/2017
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WT. SHIPPED 9940.000 LB	NO. OF PIECES 000008	GOVT. CONTRACT NO.
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CERTIFICATION

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Constellium Rolled Products Ravenswood, LLC
859 Century Road
P.O. BOX 68
RAVENSWOOD, WV 26164 USA

Steve Good

Steve Good - Laboratory Manager

Tensile - Room Temperature (SI)

		Ultimate (N/MM2)		Yield (N/MM2)		Elongation (%)		Report
Direction	Tests	Min	Max	Min	Max	Min	Max	
LT	02	544	545	471	485	11.5	12.0	

Chemistry (Actual)

	SI	FE	CU	MN	MG	CR	ZN	TI	ZR
Core	0.07	0.21	1.47	0.04	2.49	0.20	5.57	0.04	0.01

OTHERS-EACH: .05 MAX. OTHERS TOTAL: .15 MAX. AL REMAINDER

All material contained in this lot was cast and manufactured in the USA

QUALITY TEXTS:
AMC CA-15403A R 7

THIS TEST REPORT SHALL NOT BE REPRODUCED EXCEPT IN FULL, WITHOUT THE WRITTEN APPROVAL OF THE LABORATORY OR AUTHORIZED QUALITY DELEGATE. THE RECORDING OF FALSE, FICTITIOUS, OR FRAUDULENT STATEMENTS OR ENTRIES ON THE CERTIFICATE MAY BE PUNISHED AS A FELONY UNDER FEDERAL LAW.

CHEMISTRY BY QES: ARKSPARK

CHEMISTRIES REPORTED IN PERCENTAGE BY WEIGHT

WHEN FRACTURE TOUGHNESS TEST REQUIRED, TESTED PER ASTM E399

WHEN TENSILE TEST REQUIRED, TESTED PER ASTM E8; B557

DUNS Number: 090570149; CAGE Code: 1YW19

Mercury is not a normal contaminant in aluminum alloys and neither mercury nor any of its compounds were utilized in the manufacture of our product.

"END OF CERTIFICATION"

SPECIFICATION CONTROL DRAWING

PURCHASE MATERIAL: 7075-T6/T62/T651 ALUMINUM SHEET OR PLATE

SPECIFICATION: QQ-A-250/12 OR AMS-QQ-A-250/12
OR AMS 4045
OR ASTM B209

OR

PURCHASE MATERIAL: 7075-T6/T62/T651 ALCLAD ALUMINUM SHEET OR PLATE

SPECIFICATION: QQ-A-250/13 OR AMS-QQ-A-250/13
OR AMS 4048 / 4049
OR ASTM B209

PART NUMBER: M7075T6S | TTT | X | W | WWW |
THK | WIDTH

**WHERE "TTT" = THICKNESS (IN INCHES)
AND "W.WWW" = WIDTH (IN INCHES, OPTIONAL, FOR SPECIFYING CUT PLATE)**

EG. 0.063" THICK SHEET = M7075T6S 063
EG. 3.5" WIDE BY 0.500" THICK PLATE = M7075T6S.500X3.500

PREFERRED SIZE: . TTT BY 4FT BY 10FT FOR SHEET

RELEASED

2017 JUN 19
ECN 17-574

B	ADD REF TO PLATE: T651 TEMPER, AMS 4048, OPTIONAL WIDTH/THK (CARP-119)	CP	17.05.05
A	NEW ISSUE	RF	10.11.03
REV.	DESCRIPTION	BY	DATE
DESIGN	RF		
DRAWN	CP		
CHECKED	ML		
MFG. APPR.	LL		
APPROVED	WM		
DE APPR.	D9		
DATE	17.05.05		
DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA			
DRAWING NO. M7075T6S			
REV. B SHEET 1 OF 1			
TITLE 7075-T6 SHEET/PLATE SPEC NTS			
SCALE			
COPYRIGHT © 2010 BY DART AEROSPACE LTD			
ALL RIGHTS RESERVED. NO PART OF THIS DRAWING MAY BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, WITHOUT PERMISSION IN WRITING FROM DART AEROSPACE LTD.			

APPROVED

MATERIAL RECEIPT INSPECTION FORM

MATERIAL: M7075 7651.750x2.250

PO / BATCH NO.: P0240612/S107087

DATE: 18/08/30

MATERIAL CERT REC'D: Yes

THICKNESS ORDERED: 1.75"

QUANTITY RECEIVED: 36.14 ft

THICKNESS RECEIVED: 1.75"

QUANTITY INSPECTED: 36.14 ft

SHEET SIZE ORDERED: —

QUANTITY REJECTED: 0

SHEET SIZE RECEIVED: —

DESCRIPTION	NCR (Check Y/N)	COMMENTS
SURFACE DAMAGE	Y (N)	
CORRECT FINISH	(Y) N	
CORROSION	Y (N)	
CORRECT GRAIN DIRECTION	(Y) N	
CORRECT MATERIAL PER M-DRAWING	(Y) N	<u>AMS-QQ-A-250/12</u>
CORRECT THICKNESS	(Y) N	
PHOTO REQUIRED	Y (N)	
CORRECT REF # TO LINK CERT	(Y) N	<u>MT: 9383589</u>
CORRECT MATERIAL IDENTIFICATION	(Y) N	
CORRECT M# ON THE MATERIAL	(Y) N	
DOES THIS MATERIAL REQUIRE ENGINEERING SIGN OFF	Y (N)	
DOES THIS REQUIRE AN EXTRUSION REPORT	Y (N)	

CUT SAMPLE PIECE OF MATERIAL AND PREFORM A HARDNESS CHECK. RECORD RESULTS BELOW					
	HRC	HRB	DUR A	DUR D	WEBSTER
TYPE OF MATERIAL					
SIZE OF TEST SAMPLE					
HARDNESS / DUROMETER READING					

testers located in the Quality Office

QC 18 INSPECTION	ENGINEERING SIGNOFF (if required)
INSPECTED BY: <u>AT</u>	SIGNED OFF BY: _____
DATE: <u>18/08/30</u>	DATE: _____

Attach this inspection sheet with the corresponding material cert and remit to be scanned and received in